

HOW WE MAY SHOW OUR
MUSEUMS AND ART GALLERIES
TO THE BLIND:

AN ILLUSTRATED REPORT ON SOME EXPERIMENTS,
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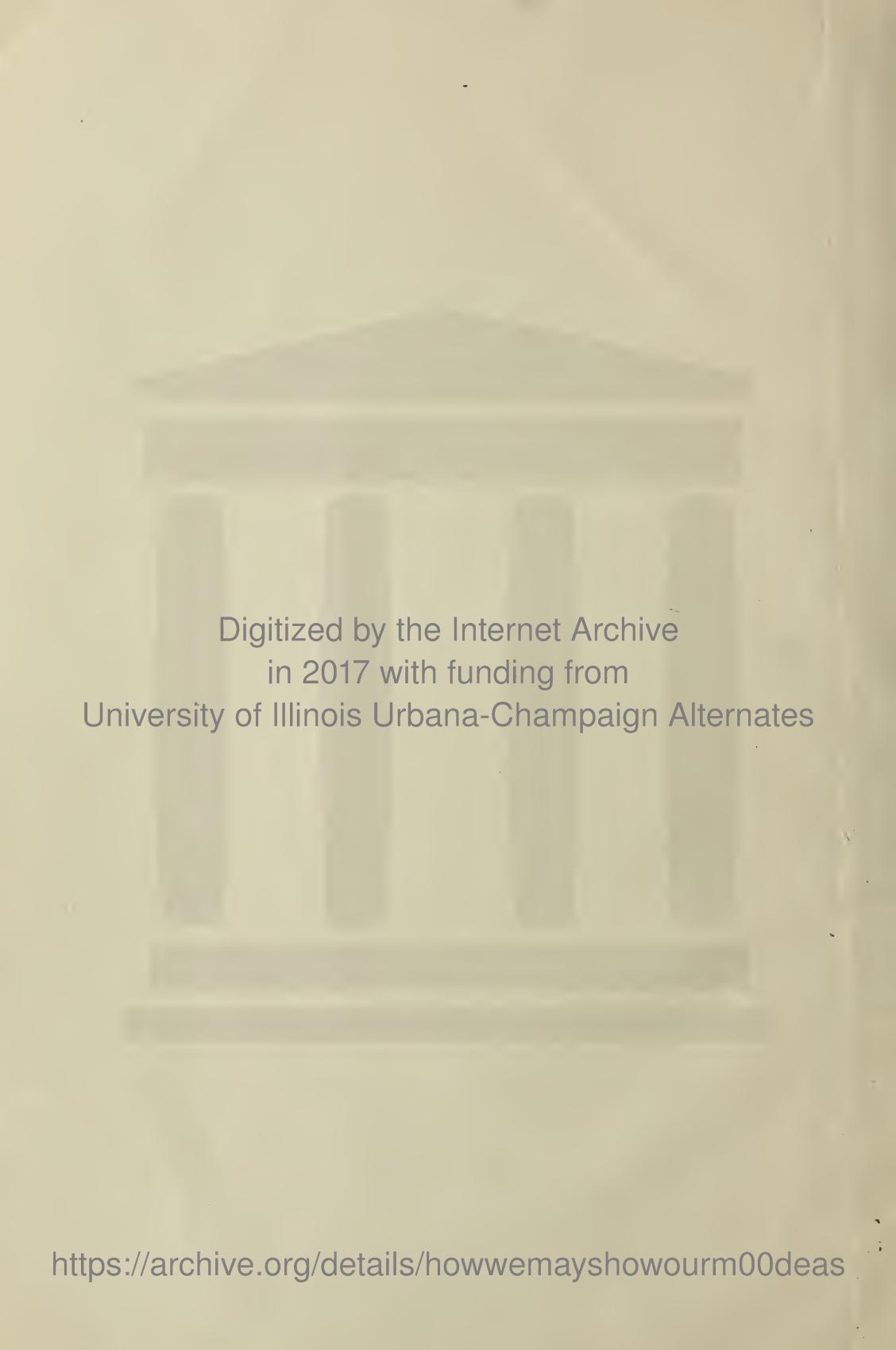
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J. A. CHARLTON DEAS,
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TO THE BLIND.

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“Ye have a world of light, where love in the loved rejoices;
But the blind man’s home is the house of night, and its beings
are empty voices.”—BULWER.

THE SHOWING OF MUSEUMS AND ART GALLERIES TO THE BLIND.

The suggestion of the possibility of showing our museums and art galleries to those who live in physical darkness, tends to raise incredulity in the minds of most people, and even a smile of disbelief; but I trust that the notes which I have brought together after a series of experiments will tend to dispel any feelings of scepticism which may exist in the mind of any of the members of this Association, which has honoured me with an invitation to record my experiences. Should I be able to suggest anything worthy of the attention of my colleagues, I am sure they will gladly consider the introduction of any idea which will extend the usefulness of our institutions in their important part in national education, by alleviating the long night of those who live in perpetual darkness, and to whom “Nature’s works are expung’d and ras’d, and wisdom at one entrance quite shut out.”

I have been interested in the education of blind children for some considerable time, and our libraries, with a number of others, have for several years provided music-scores and reading books produced for the blind, but it was not until about six years ago that the thought occurred to me that our museums and galleries might also do something to interest them. This thought was encouraged by a chance remark made by our Council School teacher of the blind children, Mr. G. I. Walker—who has been blind from youth—in speaking of the difficulties experienced in developing the imagination of the blind children on correct lines. As illustration, he pointed out that however carefully the children were instructed that a small model of a cow was only one-fortieth the size of the real animal, they were unable to think of the animal as anything larger

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than the model, as was proved by their stooping and describing something about the size of a kitten, when asked to indicate the size of a cow. This arises from the fact that no standard of size, form, and texture—beyond those which they set up through handling—can exist for those who have never had sight. Even those who have had sight are found to lose their standards unless they are renewed from time to time by actual contact. An instance of this came to my notice a few days ago, when a boy of about 12 years of age, residing in the district, recently recovered his sight after an operation, and who for several days following went about in a state of surprise and fear, for almost everything which he had not frequently touched, differed considerably in size with his recollections of seven years ago ! The size of his parents alarmed him very much, as he imagined they were much smaller.

Shortly after the school incident, while some of our large specimens of animals and birds were being overhauled and re-cased, it occurred to me to invite the local blind children to pass their hands over a few of these specimens. The invitation was accepted with avidity, and keen interest was taken by the children in the instruction given, while they felt the objects with the assistance of our ex-Deputy Curator, Mr. G. H. Dutton. These experiments were so successful that I decided to develop them later. Unfortunately, the organisation of branch libraries, and developments in other departments, prevented progress until quite recently, when with the permission and encouragement of my Committee, I was able to repeat the early efforts and extend them to the adult section of our blind community.

Early this year I arranged to give a systematic course of demonstrations which should embrace in skeleton form some of the principal or type exhibits of the museum and art gallery. The first demonstration was confined to the art gallery, and the four following ones to museum exhibits—more particularly natural history specimens. Sunday afternoons were chosen for several reasons, namely, that it was most convenient to those who assisted, and to the blind themselves ; furthermore, the departments being closed to the general public, the privacy desirable for such experiments was thereby secured. The demonstrations were announced to commence at 2.30 p.m. and conclude at 5.30 p.m. The number of blind

visitors averaged from 25 to 30, most of whom were accompanied by personal friends. Beyond a brief press announcement, no special effort was made to get into touch with all our blind citizens, owing to the limitations of accommodation, and the advisability of steady development. Yet instances came to my notice of certain blind people whose "friends" loved themselves too well to make any sacrifice to enable them to reach the institution. Thanks, however, to the generosity of our Town Council, which now allows the local blind free use of the trams, many of the visitors were able to dispense with the services of their friends.

On the first Sunday, the dimensions and arrangements of the art gallery in which all the demonstrations were held, were carefully described, and such details as length and breadth of the room were given in the number of paces ; for it must be remembered that lineal measurements convey little more idea than stating that "a room is as long as a piece of rope !" and measurements which are difficult of mental visualisation to a sighted person, are much more difficult to a blind one. The height of the room, the arrangements for top-lighting, and the method of hanging and protecting the pictures were described. Care was taken to report the number and names of those who had kindly come to assist, as well as those of the blind visitors and their friends. This information was much appreciated, for in this way blind friends were able to meet, who might have left the place ignorant of each other's presence. These details may at first appear trivial, but a knowledge of surroundings, relative proportions and "atmosphere" generally, is as important and interesting to the sightless as to the sighted, who are apt to overlook this fact through unconscious familiarity.

Following this physical, social, and geographical information, we proceeded to "show" the pictures. First, a short explanation of the purpose of pictures was given ; then, a small painted and an unpainted canvas, an artist's palette, brushes, and paint tubes were handed to each individual to feel and examine closely. After a description of the nature and use of these materials, the blind visitors were taken to the pictures, glazed ones being selected for obvious reasons. Their length and height, and the character of the frames were felt with considerable interest, the great size of many being a

revelation which drew forth expressions of surprise. After the subject of a picture had been described, the positions of the important features were indicated by guiding the first finger of the person's hands over the outlines, and in this way the relative location and size of the principal points were made clear.

Though it cannot be claimed that any idea of colour can be conveyed to those who have never had knowledge of it, yet it must be admitted, that to create some idea of the form and make-up of a picture is to produce a not unimportant impression of the artist's intention, and to leave food for the pleasures of the imagination. Those pictures of large and bold subjects were much appreciated, and the questions asked by the more intelligent section concerning the details of landscape, dress, expression, etc., were such as to indicate that a good deal more of the description of the picture had been absorbed than one had at first dared to hope. One blind visitor, Mr. John Ramsay, who is a missioner to the blind, was so inspired after his inspection, that a week or two later he preached a sermon in a local chapel, on his impressions drawn from the pictures.

The subsequent demonstrations were also preceded by short lectures delivered in simple language by capable local specialists, who readily gave their much-appreciated services; and which in no small measure contributed towards the success of the experiments. The information given was just that interesting outline which is required by a person approaching a subject for the first time, and was never overloaded with scientific expressions or details; in fact, only sufficient to whet the curiosity, and make the audience eager to make a close examination of the specimens. This desire was gratified immediately after the lecture, when the visitors were taken in hand by a number of competent guides, who, like the lecturers, readily placed their services at my disposal. Among these ladies and gentlemen were several members of my staff, actuated by the true feeling that free service to the claims of brotherhood is the best rewarded labour. I gladly extend my grateful thanks to all these willing and kind helpers whose names are recorded elsewhere, and I should also like to take the opportunity to express my special thanks to Mr. H. W. Ricketts,

Deputy Curator, who worked assiduously with me for the success of the experiments, and in the production of the interesting photographs and lantern slides. His work is worthy of the highest praise.

Under the charge of his allotted guide, each visitor examined the specimens very closely. Attached to each specimen was a carefully drawn-out descriptive label, which was read and supplemented by any interesting knowledge of the object which the guide might already possess. Great care was taken to lead the hands or fingers to the important features, and here I would lay emphasis on the need for special care in selecting guides whose sympathies and imagination enable them to realise to some extent the importance to the blind examiner of thorough handling. To him, his fingers are eyes ; eyes which are much more capable and important than the less sensitive fingers of the sighted person. This conscientious guiding of the blind person's hands is by no means a simple matter, and where possible, there should be a guide for each blind visitor. When it is remembered that the voice must be used to explain each feature at the moment of touch, and that in this way only one person can be satisfactorily dealt with at a time, it will be realised that an afternoon of such work is not without its fatigue, but a fatigue which is more than recompensed by the most convincing expressions of gratitude on the part of the recipient. It was impossible to make a detour in any particular order as the guides were obliged to take their charges from one object to another as each was vacated ; but to ensure each visitor examining every object, a small card measuring $5\frac{1}{2}$ in. by $4\frac{1}{2}$ in., on which was typed a list of the exhibits to be seen on that occasion, was attached to the coat lapel or dress of the visitor, and each item was ticked off when it had been examined. In addition to this, they were supplied at the first lecture with a programme of items to be dealt with during the whole course.

After the "Picture Sunday," four following ones were taken up with museum objects, the first three being devoted to Natural History. On the first of these a brief lecture was delivered in a most entertaining manner by Dr. H. K. Wallace, B.Sc., the following selection of animals being dealt with :—Chimpanzee, Hedgehog, Lion, Lioness and Cubs, Tiger, Polar Bear, Wolf, Badger, Otter, Pine Marten, Rat, Squirrel, Beaver,

Field Vole, Gazelle, Fallow Deer, Seal, Walrus, Narwhal's Tusk, Head of Spanish Bull, Head of a Sheep (Ram), Horns of Elk, Kudu, and Gemsbok. It will be seen from the illustrations that the objects shown were taken from the museum cases and arranged around the art gallery, each specimen being given as much space as possible to allow freedom to handle and learn the size, shape, texture, or any peculiarities.

The next Sunday was given up to *Reptiles*.—Crocodile (Nile), small; Loggerhead Turtle, Python (African), Snake. *Fishes*.—Blue Shark, Saw Fish, Plaice, Salmon, Porcupine, Globe Fish. *Shells*.—Various. *Starfishes*.—Various. *Geology*.—Fossil Tree, Local Concretions, &c.

The lecturer of the previous Sunday (Dr. H. K. Wallace, B.Sc.) again spoke, dealing skilfully with reptiles, fishes and starfishes. Geology and shells were ably described by Dr. Woolacott, Lecturer to Durham University, who commenced by stating that if a shaft were sunk through the floor, it would with certainty reach coal within a very limited and calculable distance. He followed this by the history and formation of coal.

On the succeeding Sunday a lecture on Birds and Birds' Eggs and Nests was delivered by Miss Norah March, B.Sc., an experienced and entertaining nature-study lecturer. The following specimens were shown:—Eagle, Sparrowhawk, Barn Owl, Kingfisher, Cuckoo, Bullfinch, Magpie, Corncrake, Woodcock, Common Curlew, Rook, Raven, Lapwing, Humming Bird, Mallard Duck, Herring Gull, Black-headed Gull, Swan, Albatross, Pelican, King Penguin, Stork, Flamingo, Kiwi (Apteryx), Emu, Turkey, Partridge. *Birds' Eggs*.—Wren, Thrush, Ostrich, and casts of the Aepyornis and Great Auk. *Birds' Nests and Eggs*.—Thrush, Sparrow, Blackbird, Goldfinch.

A reminder that the birds, unlike the animals, depend upon two legs, and that the hands should be passed carefully from the head downwards to the tail or feet, was sufficient to prevent even the slightest damage. Special interest was shown in an eagle which had lived for over 20 years in the grounds of a local benefactor of the blind, and the same was evinced in a parrot, which for years had lived in our public Winter Garden, and was in the habit of calling out to admirers, "What time is it?"

An instructive explanation of the Human Skeleton was then given by Councillor Dr. Gordon Bell, J.P., who brought his subject up to date by briefly reporting some recent successful discoveries in osteology.

The last Sunday was reserved for miscellaneous objects, which included the following :—Burmese Idol, Prehistoric Implements, Armour, Sword, Dagger, Flintlock, Modern Rifle, Pistol, Zulu Shields and Spears, Model of Locomotive, Model of Sunderland Bridge, Models of a Paddle Tugboat, Screw Steamships, Rowing Boats, Lifeboat, Aeroplanes, a Balloon, and a cast of the Cullinan Diamond, and lastly, Busts of Celebrated Men. Interest in the Burmese idol was quickened by a concise and lucid account of Buddhism, admirably delivered by the Rev. Canon Gouldsmith. The history of Arms and Armour was also made very interesting by Dr. T. Coke Squance, F.R.S., Edin., who contributed some valuable examples from his own collection. He also described prehistoric man and his implements. Keen interest was shown in the models of boats and ships, which was perhaps natural, as Sunderland produces more shipping tonnage than any other town in the world, and even twice that of America.

The same programme was gone through on each succeeding Monday morning for the blind children of the Council School, for which purpose the art gallery was closed for two or three hours. About 20 scholars attended on each occasion, and the same intense eagerness and unflagging interest marked the visits of the young people, who never hesitated to ask questions, or describe their impressions as soon as received. As instances of some of our efforts to assist in the visualisation of the sizes of objects, six small boys were mounted on our strongly set-up lion, and a small girl was seated in a giant clam. From the illustrations shown one might imagine that the objects were being used in a nursery ! The addresses to the children were given by the staff, with the assistance of the blind teacher, Mr. Walker ; who, having been present on the preceding day, was well able to bring out the points which he knew to be of interest to his charges, being able to realise things from the blind point of view, and explain them in a comprehensible manner.

I was pleased to find that the children were remarkably quick to assimilate instruction, and used their

hands with great dexterity. It will be remembered that touch is the first sense which a child develops. Dr. Montessori, the new educationist, says that her blindfolded scholars are very proud of "seeing" without eyes, holding up their hands and crying, "Here are my eyes, I can see with my hands!" It is claimed that the natural way for little ones to learn about things is to touch them, and that in this way they can learn much more quickly and with less fatigue than through their eyes. As evidence of the value of this tactile knowledge, I cannot do better than refer to a couple of dozen clay models made by the children of our Council School for the Blind. As you examine them, please remember that they were made unaided, by blind and partially blind children, who were not asked to make them until five weeks after their single examination of the specimens represented, when it occurred to me to test the impressions of their visit. They are the productions of nine children whose ages range from 8 to 15 years, with whom modelling is not a special feature, and who had not previously made or handled similar objects. One of the models of the bear, made by a totally blind girl of 14, is actually her first attempt of any kind, never having handled clay, or shown any desire to do so. The models are not put forward as examples of modelling, but solely as expressions of knowledge and ideas gleaned at the museum. To those wishful of knowing something of the effect of the experiments from the blind point of view, I do not think that a more pleasing and convincing representation could be had than in these models. The results have caused many sighted children to marvel!

Many of the comments were interesting, occasionally amusing, but never absurd; and suggested numerous impressions for notes on the psychology of the subject. It was interesting to follow the suggestions and connections set up in the minds of many. With several of the adults, and more especially the children, the handling of the albatross was an immediate reminder of "The Rime of the Ancient Mariner"; special attention was aroused in consequence, and quotations were showered upon the impassive specimen. The ivory feeling of the narwhal's tusk immediately suggested to one woman (blind from birth) similarity to the ivory knob of her umbrella, and caused her to handle her

treasure with curiosity as she left the building. The statement that the colour of the Polar bear changes from white to cream with advancing years, induced one person to ask how nearly such a change compared with the appearance of the hair of an elderly human being. Another found pleasure in the fact that the bear's coat was similar in colour to a scarf which she was wearing. Several expressed surprise that the head of the walrus and the bear felt out of proportion with the size of its body, whilst another commented on the smallness of the eyes of these two large animals.

Some of the comments may seem trivial, but it must be remembered that in many cases this was the first dawn of knowledge of the subjects, and that even such points give mental food for the lonely hours of many of the blind, neglected blind in numerous cases, for there is no doubt that some of them are treated with less concern by their relatives than is generally supposed.

In a letter from one of the blind, I am told that these experiences have opened up a new world of thought in the workshops of the local institute, upset many preconceived ideas, and raised the level of their discussions to a higher and more intelligent plane. In passing, one may remark on a pleasing feature, the rapid improvement which many of the poorer ones made in their personal appearance. Indifference and slovenliness were replaced by cleanliness and attention to tidiness.

It may be of interest at this point to refer to the following Notes on the experiments received from Mr. G. I. Walker (blind from boyhood), Teacher of the Blind Children in the Local Council School, and from Mr. John Ramsay (also blind from boyhood), Missionary to the Blind, Sunderland.

Mr. Walker writes:—

“ . . . Our people are simply astounded with the way they have been treated on the various visits. This may seem odd to you, but to me it is quite explicable. We are mainly accustomed to be treated as if we were something less than human beings.

“ The satisfactory point is that the interest has deepened as time has passed. Discussions in the Blind Institute and elsewhere have become varied and interesting, and show that the minds of those attending have been awakened and stimulated, and made to understand that they are indeed deficient, and sadly ignorant of what is around them. This has not produced any appreciable

sense of bitterness and discontent, but has made them more sensible of the kindness and thoughtfulness that have so generously sought to bring them into contact with so many things in such pleasant fashion. This is a great gain, and will, if sustained, lead to much future good.

“ Whatever arouses thought, and stirs interest in form, shape, colour, weight, size, height, depth and the hundred and one accompaniments must inevitably strengthen and quicken the powers of the blind, and therefore tend to fit them to play their parts more efficiently as workers and citizens. It is the want of vivid and approximately correct mental standards or mental pictures which makes it so difficult for the blind to produce successfully, neat and well-made articles, and to enter intelligently into the many questions affecting their own economic and ethical condition. The appeals you have made to their fancy and imaginative power have disarranged and overturned what I may describe as previous conceptions. Nothing short of such object-lessons could have shaken their confidence in their own conceit. Contact with nature and her works shows them what is, and what is possible. Where there was darkness and lack of form, there are now struggling notions of shape and size. The very effort to bring cohesion out of empty void must quicken and strengthen our mental powers. We have a gallery of new forms to imitate and to which we must now strive to approximate, and these in their turn will suggest and explain hosts of others, hitherto flabby and useless as practical mental food.

“ Touch is very peculiar in its varieties of modes and expressions, and also in its varied ways of acquiring and conveying to the brain what it feels. Let two blind persons feel a given object, and watch how different will be their methods of observing and tracing if left to themselves. The results will very probably be as varied as the methods. But one thing is certain : they will both carry away more or less vivid pictures, and will seek to express these in quite a variety of ways. It is here that outside help and direction will prove of most assistance. The real difficulty at the beginning will be to discover how much is owing to faulty observation, and how much to inability to express. If there be sufficient examples of objects to use as mental stimuli and standard-makers, the blind person can be led to realise what is really wanted, and will gradually improve in his attempts, but if there be a lack of such objects whereby he may compare and contrast his mental picture and product, what is he to do ?

“ The clear, lucid explanations accompanying the objects you placed before us, point the way to sound methods. Explanation and opportunity to observe are imperiously required : appeals must be made to realities, and not to inadequate models. Where reality is impossible, the model ought to be as large and as clear and definite in outline as may be. We have a figure of an eagle in school, a few inches in height ; this is shown to blind folk, and they are told that the form is correct, but they must enlarge it in their minds ! What standard have they for their enlargement ? You will remember the incident of the cow. Now that the children have seen an eagle, the model will be of some service to help them to picture the shape of wing, etc. This applies all round—reality first, then model. The blind who have once seen are of course better off, because they have quite a number of mental pictures to fall

back upon, and can use them to assist in grasping fresh ones. But even they find great difficulty in assimilating new forms, inasmuch as what they took in through the eye appears different when observed through the medium of touch; furthermore, their standards change and need readjusting through touch. There appears to be a perspective of touch, as well as of sight. The touch takes in one part at a time and then builds that to another, and yet another, until the whole is produced.

"The sensibilities of our blind have been aroused in all sorts of ways. One said to me that if she were to be squeezed to death, she would rather be so by the Polar bear than by a snake. I asked her why, and she answered, 'The bear is a comfortable sort of creature to feel, but the snake is horrible. It feels what it is, a horrid beast!' Here is another remark: 'I like the lioness, she seems one that could be tamed, but the tiger, oh, it is terrible, it made me shiver, it feels cruel, its mouth tells you how fierce it is; I could never trust it.' The bear was a general favourite, I think because of his coat. This is symbolic of human nature, is it not—because of his coat?

"One said that now she would have a different idea about birds. She had always thought of them as little things, even when she heard them spoken of as being large. 'Large' had no real meaning for this blind person, simply because there was no mental picture to explain the word. I can testify to this point myself. The form of the albatross, the penguin, the pelican, stork and flamingo were new to me; my pictures of these were practically non-existent. Now I have them, and shall never forget them, they will illuminate all future references, and enable me to comprehend much that I have hitherto found void. I shall now be able to follow descriptions and take pleasure in what once annoyed me. The differences in form suggest clumsy, ugly and graceful. Some things give me a feeling of beauty and grace, while others give me a feeling of annoyance and distaste. Other blind people are the same. The stork disappointed me, but the flamingo aroused my admiration. The penguin suggested oddity and the commonplace, and also the grotesque. I could have laughed outright! I saw in childhood a woman who called up the same feeling. The gazelle awakened admiration, but the tiger suggested cruel power, a tyrant of the Nero type. The shark made one of our fellows hate him when he felt the awful mouth. It is not only the mental but the moral powers that have been appealed to by your experiments. All this is surely true education, and shows what may be done to bring us into line with other people, and understand what we read and hear.

"To speak of the children's experiences, would be to repeat much that I have already said, with this difference—they are working along similar lines, but of course very much modified through age and lack of knowledge. They have, however, the advantage over the adults of being in a position where they can put their notions to the test by asking questions of myself and others whose business it is to answer them. I shall work constantly on what they have acquired, and so steadily seek to add to their knowledge and understanding. The objects with which they are now acquainted, will form the foundation of much of what will be the lesson matter of the future school work. I can always refer to their experience at the museum, and the knowledge gained there. You can see the importance of this, and how observation and explanation will work to mutual advantage. It will train them to observe, arouse

their sympathy and interest in the acquisition of knowledge, quicken their curiosity and inquisitiveness, and most certainly lead to their adding vastly to their store of ideas. They are now making attempts to model something they saw at the museum, and though the efforts are mainly crude and often hardly recognisable, yet on the whole it has greatly added to the usefulness of our modelling, and has shown me how valuable an educational factor modelling may be made. It has also added to their vocabulary to a wonderful degree, and I may say it has forced me to add to mine for their sake. It has added to the interest and usefulness of our geography lessons, and is compelling me to rub up my mechanical knowledge. I am supposed to be an *Encyclopædia*!

“With minds better stored than their predecessors they ought to be keener observers, and better workers and more intelligent citizens. The reverence for the Creator and Sustainer of so much power and so many wonders must surely be deepened.”

Mr. Ramsay says :—

“The new method will help to stimulate our imagination and develop the mental organ of sight.”

Speaking of the animals, he says :—“The lion was much admired, how majestic he must have looked in life. We saw a marked contrast in the lioness ; she was much more quiet looking, with smooth hair even to the tip of her tail. The walrus was not a favourite with us. We thought it an ugly animal, and the ugly sets up feelings of repulsion ; the beautiful, feelings of pleasure and joy. I was much interested in feeling the fishes and to discover their way of breathing, and the fact that their fins are not used for swimming, but only for balancing.”

“One of the girls, who had lost her sight in early childhood, said, ‘What chance have I ever had of knowing such things before, tell me more about them.’ This is the feeling of all the blind who have never been able to see.

“The rattlesnake’s tail afforded much amusement. The crocodile and alligator appeared ugly animals to the touch, and were not at all favourites with us. The fossils and shells created great interest, especially the fossil tree trunk. The lecture on the human skeleton was a rare treat. On first putting our hands on the bones it set up uncanny and creepy feelings, but we became quite familiar with the skeleton. It brought to our minds a quotation from the Psalmist, David—‘I will praise Thee, O God, for I am fearfully and wonderfully made.’ The advantages of this method should be carefully studied by everyone interested in the blind.”

It is a pleasure to record that the two or three hundred objects were handled with care and consideration, and despite the fact that each one was examined by about 50 adults and juveniles, nothing was soiled or broken, except three duplicate eggs of the common types.

Briefly, this is a résumé of the work carried out. As to the result of these experiments, I hear on all sides nothing

but expressions of highest appreciation, and a desire for the resumption of the demonstrations, which, unfortunately, a congested and overcrowded building does not encourage.

If I were asked to state my most outstanding impression of these experiments, I would say that it was the discovery of the blindness of the sighted in their relation to the blind. We are always taking too much for granted, and what we think they know is frequently knowledge which they have not had an opportunity of acquiring. We miss opportunities to interest these people owing to our own familiarity with things, and we fail to realise that the handling of various objects, and a description of them, would give untold pleasure and leave an occupation for the mind.

Many people are apt unconsciously to form an impression that a man deprived of the sense of sight is abnormally weak in the other senses. Until quite recently there was a tendency to swamp these unfortunate people with Biblical literature, as though blindness produced a moral leprosy which could be stamped out only in this way! A little closer contact would show that blind people are neither better nor worse than sighted ones; in some cases it would produce surprises, and occasionally even intellectual humiliation.

My threefold duties, like those of most of you, bring me into contact with all sorts and conditions of men, but of these great varieties, I can honestly say that I have never shown or explained any of the possessions of our institutions to a more eager, appreciative, and grateful class of people. Should you feel induced—as I hope you will—to try similar experiments in your various museums, all your trouble, and all the kindness of those who assist you, will be rewarded by the most sincere and profound gratitude, and this will be followed by convincing evidences of the usefulness of the effort.

It would be well to get into touch with one or two leading blind men—those of influence among the blind—who can act as interpreters of your object. In selecting your sighted helpers, save time by going straight to the busiest of those people who are suitable. This may appear unkind, but—save in exceptional cases—you will find that they are the folk who make time. As in all work requiring sacrifice, there are to be found those who are intensely interested, but who, despite

the fact that they have all the time there is, "with one consent begin to make excuse." With some it is the day for physical exercises, or weekly hibernation! Good wishes are expressed in plenty, but—"good wishes, fond hopes, are but vain desire unless we strive to help our brother's need."

These experiments, I admit, are such as cannot be carried out at frequent intervals, owing to the amount of work in preparation, and the wear and tear in the opening and closing of cases. At the same time there is no reason why opportunity should not be taken to arrange the periodical overhauling in such a way as to place a selection of related objects before the blind of each town for short periods, and so in time work through the museum in skeleton outline. Most museums possess unused duplicates, which, if placed in a suitable room in a blind institute, would form an excellent nucleus for the purpose, provided, of course, that care were taken to give systematic instruction, and that specimens were not treated as lumber and housed with carpet-sweepers, garden seats and lawn mowers! If such accommodation could be guaranteed, I am sure that the desire for specimens would only need to be brought before some of our travellers and big-game hunters to secure an immediate response. As most of our museums now possess types of principal animals, this would open up a new field for gifts.

In concluding, I hope that I have made clear to you the *raison d'etre* of my paper. If my treatment of this subject has not given much room for discussion, I hope it will at least have suggested a world of space for action. Of course the ideal hope is that some day when civilization has so far advanced that a little more time and money can be spared from the requirements of warfare, consideration will be given to the whole question of special provision of opportunity and assistance for afflicted members of the State. Then, maybe, type-collections for the blind could be a State-aided feature, provided in every populous district, attached to museums, blind institutions, or educational departments, and used in teaching elementary zoology to all scholars.

When it is realised that there are over 30,000 blind persons in the United Kingdom—one in every 1,500—it cannot be said that they are a negligible quantity. To understand what this means at home, Hull with a population of about 278,000, has

over 300 blind, or one in every 926; Sunderland with over 151,000 people, has, as near as we are able to register, over 160 blind, or one in every 944 persons. Manufacturing towns of course produce the larger proportion. As the blind do not form a collected section, they are not a political force, and so, with their other afflicted brethren, fail to secure a place in the national sun.

However, in the glorious belief that "the minds of men are widening with the process of the suns," I submit these proposals to you, with the reminder that all progress is individual in the first place, and that if you will be the individual of your own community, you will be helping towards the realisation of the doctrine that "the highest worship of God is service to man."

LIST OF LECTURERS, GUIDES AND OTHERS, WHO ASSISTED IN THE
DEMONSTRATIONS, OR IN VARIOUS WAYS.

Rev. H. Gouldsmith, M.A.	Miss Donnison.
*T. Coke Squance, M.D., F.R.S. Edin., F.R.M.S.	H. Brown, B.A.
Mrs. T. Coke Squance.	*Alfred Harrison.
Miss Vint.	H. H. Joseph, B.A.
*H. K. Wallace, M.D., B.Sc. L. Duckett.	Mrs. G. I. Walker.
*R. Gordon Bell, M.D., J.P.	Mr. J. and the Misses Boddy.
Miss N. March, B.Sc.	R. Donkin.
*David Woolacott, D.Sc., F.G.S.	C. A. Clayton Greene.
T. W. Backhouse, F.R.A.S.	Miss E. W. Austin.
*Wm. R. Ball, who kindly baked clay models at Pottery.	E. Hay.
C. Grimshaw & Sons, who kindly lent models of Biplane and Aeroplane.	G. W. Temperley.
	G. H. Dutton, B.Sc., F.G.S.

Libraries, Museum, and Art Gallery Staff:

D. W. Herdman, H. W. Ricketts, H. H. Griffiths, G. G. Clarke,
E. Hindmarch, H. S. Donkin, C. Stacey (Central Janitor,)
and R. Atkinson (Attendant).

* Names prefixed with (*) indicate Members of the Libraries, Museum, and Art Gallery Committee.

DISCUSSION.

THE PRESIDENT (E. Howarth, F.Z.S., F.R.A.S., Sheffield): I think there is material in what Mr. Deas has told us, that may give rise to a good deal of discussion. There is a very profound problem underlying these experiments, which must be obvious to all, the psychological problem, which is of intense importance. We are favoured with the presence of a lady and gentleman who are specially interested in the blind, and I am sure you would like to have a few words from them.

MISS GARAWAY (of the London County Council Blind Schools) said: I feel it presumptuous of me to address a meeting like this, but after your kindness in asking me here, I claim your indulgence to make a few remarks. I should like to do what Mr. Charlton Deas did at the beginning of his paper, ask you to disabuse your minds completely of the thought that that which appeals to the eyes only, is quite beyond the range of interest for those who don't see. Any of us who have come in close contact with intelligent blind people know how very keen they are to increase their stock of ideas and to remove the results of their disability which tends to make them different from their fellows. Their intercourse with other people arouses in them that natural interest in things which primarily appeal to the eyesight, and every fresh idea that they get, every new conception, makes a point of difference less, one thing in common more, one new piece of knowledge which acts and reacts upon the existing stock; and when you come to deal with children, you have to try and reach them through those avenues which are still left open to you and give them the fullest knowledge possible. I therefore plead with you, if you are inclined to think that these efforts are useless or little appreciated, to make such efforts, and, on second thoughts, you will come to the conclusion that they are of the very highest value. I have two or three points to urge upon you that my experience leads me to think are necessary. I would like to point out that the ideas of blind children are exceedingly vague. That must be so. Take for instance the ideas of animals and animal life. When you remember that practically all their knowledge has to come to them through their hands, and when you realise how difficult it often is for them to get that knowledge and to get in touch with these things which alone can give them clear ideas, you will realise how very valuable such efforts are. For instance, a little blind child whom I know, was astonished when she "saw" a cow with her hands. She had previously had no idea of its size.

It is this coming into actual touch that is of the highest importance, because a blind child's hands are its eyes, and if you will do what lies in your power to bring them into touch with these things you will be doing an invaluable service to them. Then, if this actual touch in some cases is impossible, it can in a measure be suggested by very careful description. You may be inclined to say that a description is all that is needed, and that it is no good bringing these children to our galleries or zoological gardens. But your description is never so effective as when you have an object before you. I would also urge, as Mr. Charlton Deas did, that you should make your comparisons as correct as possible. To say to a child that a certain tree is 30 or 60 ft. high conveys little or nothing to it, but to say that the tree if laid down would stretch from a point to the end of the lawn, and pace the distance, conveys much more. Or you might compare the positions of the branches with points on the staircase of the house, and indicate their varying thickness by reference to such parts of the human body as the trunk, or limbs. You would then give them some real idea of what you are trying to describe. All that I have said is only a plea that you will do what Mr. Charlton Deas has so ably done in Sunderland. May I say I have the honour to represent an Association of Teachers of the Blind, and very shortly we shall have our annual meeting, when I hope that I and Mr. Ritchie, who will speak to you in a moment, will be able to bring home how very much has been done in Sunderland; and if, as I believe, the idea is taken up with enthusiasm, and we come to many of you and ask you to do the same for children in the other towns, I hope you will do this invaluable piece of work for us. And where possible, in dealing with animal life, I hope your description will be followed up by a visit to the zoological gardens, so that the children can stand in front of the cages and have the animals carefully described to them, and hear their movements and the sounds they make, which are of enormous interest to blind children. I thank Mr. Charlton Deas for what he has done by setting an example which I hope will be followed all over the country.

MR. RITCHIE (of the Henshaw Blind Asylum, Manchester): I thank you very much for this opportunity of coming to hear Mr. Charlton Deas's paper and to see the pictures of his experiments, of which I had heard a little, and to second what Miss Garaway has said as to the indebtedness of the teachers of the blind for what he has done and for what he is doing. There are fifteen hundred blind children in the schools of the country, and nearly all the schools are in large towns, and therefore within the reach of museums, and so any interest that you have in what

Mr. Deas has told you this morning, can be turned to practical effect if you so desire. We who are teachers of the blind are not very much given to talking of the limitations of our pupils. We prefer to speak of what they can do and to talk about their attainments and success in overcoming difficulty. If we speak to-day of their limitations it is because we want you to help us to overcome them. A blind child is cut off from many sources of information which are open to the ordinary child, and that is a strikingly obvious remark. I would invite your attention to the differences in opportunity between an ordinary and a blind child. In school hours the sense of hearing is mostly used by an ordinary child, and out of school the child learns most through his eyesight. An ordinary child educates himself as he moves about. He sees wondrous things and builds up a greatly varied and complicated background to his mind. All that, in ordinary circumstances, is denied to the blind child. It is very difficult, it is almost impossible to make clear and vivid one's experience of things seen, to a person who is without that sense. To know the world by hearsay is merely to have knowledge which is dim, vague and cold, and therefore we teachers of the blind have to educate by the senses remaining, as Miss Garaway pointed out, by the sense of touch. To the blind child, discovery is the only real way of learning, and we want our blind children as well as our ordinary children to discover facts for themselves. Of course, as has already been pointed out, the ignorance of blind children is great, often grotesque. A teacher of a class may find that a child does not know whether a sheep or a cow is the larger, or he may even find that a hare has wings! Some blind schools have been trying to get together a little museum of their own, but such collections are necessarily meagre, and teachers of the blind up and down the country will welcome most cordially the chance of taking their children to a really adequate collection. Let me urge, if the school for the blind in your locality asks for facilities, that you will remember Mr. Deas, and do what you can.

DR. F. A. BATHER, M.A., D.Sc., F.R.S. (British Museum), said : I wish to mention one or two ideas which have occurred to me. I am curious to know whether one of them is the same as that which you, Mr. President, said raised the psychological and the physiological question. I have no doubt many of the curators present, when they return to their museums will have been so impressed by Mr. Deas's lecture that they will endeavour to do something of the kind, and it seems to me there is an opportunity for combining with this philanthropic work a rather interesting scientific inquiry. I was much struck in Mr. Deas's

lecture when he told us that these blind pupils said they considered certain things to be beautiful, or ugly, by simply touching them. You will remember that they frequently made use of that expression in their letters. Now, our ideas of beauty are generally connected with the sense of sight, and without going into a lengthy discussion (because a discussion has been going on for many hundreds and thousands of years) as to what the sense of beauty is, we may take Hogarth's line of beauty as a simple instance. In order to get at the meaning of anything, a fruitful process of inquiry is to eliminate certain factors. Here we have in the case of the blind, especially of the blind from birth, the factor of sight entirely eliminated, and it would be very interesting to find out, if possible, from where they get this idea of beauty, and what it is which causes them to call a thing beautiful, rather than the reverse. Then there was another point that struck me, and that was, that you find from observation that those people who are not blind use the sense of touch to a very considerable extent in appreciating form. Mr. Deas made use of the expression, visualising. Of course that is rather a curious expression to apply to a blind person, and yet after all that is what we are aiming at, to get them to visualise these things in some sort of way. Now in the attempt that is being made by the Royal Drawing Society to encourage drawing by children, Mr. Ablett, whom many of you doubtless know by name, the chief organiser and promoter of the Royal Drawing Society, uses as one of his methods, the placing of an article in a sack or some thin material. He then gives it to the child to feel, and when he has felt this article all over he is told to make a drawing of it. It is a very great thing to encourage in ordinary people this sense of touch, and the process of visualising from the sense of touch, and here we see in the case of the blind this is the only thing that they can do. The practical process is the same in the two cases. I throw out that idea as a little elucidation of the methods that can be employed. I urge people to make systematic enquiries into the ideas aroused in the blind and to tabulate them, so that in the course of time we shall have a large body of observations from which it may be possible to draw some interesting conclusions. I should not like to sit down without expressing on behalf of the audience what I feel is our exceedingly high appreciation of the work that Mr. Deas has done.

MR. R. QUICK, F.S.A. (Scot.), (Bristol) : On one occasion when showing the figure of Venus to some blind people at Bristol, they passed their fingers over the whole statue, and their comment was, "She must have been a very beautiful woman." The blind have been of great assistance to us in typing our lectures ; they do it in Braille and it is transferred to an ordinary type machine.

MR. ROTH: I may call attention to the fact that 50 years ago my father employed models in teaching scientific physical training. He was one of the pioneers, or at any rate was one of those who introduced Swedish gymnastics into England. He had a great difficulty in teaching blind people the exercises, and he had made several papier-mâché figures, eight or nine inches high. They were in the different forms of the exercises ; some had the arms extended, and some the hands on the hips. The blind passed their fingers over them and then carried out the exercises. He found it a very successful method, and at that time he asked the Board of Education to take it up, but they did not see their way to assist in any way.

MR. CHARLES MADELEY, F.L.A. (Warrington): While not wishing to depreciate the opinion formed from the excellent lecture of Mr. Deas, in which he showed how very valuable use may be made of museums, I should like to point out that some of the illustrations he gave might be explained in quite another way from that applied to them. We are told that when the children felt over the tiger and the lion, they recognised the savage character of the tiger and the more noble character of the lion. Well, a good deal depends upon the stuffing, and when we saw the slides, we noticed that the tiger had been characteristically stuffed in a snarling attitude, and I should like to feel sure that the children were told that the tiger does not always wear his teeth outside. We saw that the lion had a benevolent, even paternal, expression. I hope it was explained that that expression is not always the appearance that that animal presents.

A DELEGATE: I think we are all indebted to Mr. Deas for showing us an opportunity of giving an interest in life to the blind that they have never had before. If we can do that we shall succeed in doing a valuable work for the cause of humanity. To make a man's life more interesting is a great thing. We look at a picture and derive enjoyment if no practical value. There is the question raised by Dr. Bather. It appears to me that the recognition of beauty in the mind of the blind raises the question of contour, of line and form. It cannot be derived from facial expression, and I feel that it must be a question of beauty of line and form.

DR. W. EVANS HOYLE, M.A., D.Sc. (of the National Museum of Wales): Dr. Bather has said that the question of beauty is a question of form, and it does not seem to me to matter whether you get the form through the eye or through the touch. If the impression to the mind is of satisfactory form it will be beautiful

however you get hold of the shape of the object. I had the experience at Manchester of walking blind people round the museum, and I had an intimate friend, a blind girl, to whom I showed things. I tried very hard to get at what was in her mind as a result of the examination of things. I found it extremely difficult—more difficult than you would think. It is almost impossible to find out what the impression in a blind person's mind really is, and for this reason, that they have grown up with seeing people and they have got hold of our words and phrases, and they use those words and phrases in the same way as we use them, and you cannot tell what they really mean by them. They have got so much into the habit of seeing things with our eyes, that you cannot tell how much of what they say to you is the result of their own investigation or of what they have picked up. I used to take my friend on a tandem bicycle. And, by the way, I may say that it is very easy to teach the blind many things. I taught that girl how to ride an ordinary bicycle, but of course it was not safe for her to ride alone. We used to go on a tandem, and after we came back from a ride she would describe to some other people everything we had passed, the beautiful, picturesque old cottage and the old porch of roses, and you would never have known from her speaking about it that she had not seen everything she described. It is very wonderful what blind people can do. I went over the Boston Institute for the Blind in Massachusetts, where the children are taught to do chemical experiments and a great number of things which you would think absolutely impossible to the blind.

PROFESSOR ROBERTS BEAUMONT, M.Sc. (of Leeds University) : To my mind the blind can discriminate shape and form, and shape and form undoubtedly, as one speaker has stated, very much decide what we consider to be beautiful. A very peculiar incident came into my experience in regard to a blind person. You would hardly think that a blind person would be able to discriminate the differences of surface of a woven fabric and to discriminate to such a degree as to be able to sketch the effect which was due to the interlacing of the threads so far as the protruding pattern was concerned. I was passing through a museum with which I am connected at the same time as a person who was unfortunately blind. I had an idea that he would take little interest in the specimens which his friends were viewing with such interest. I passed my hand over one specimen which was put before him with the idea of indicating the difference of the surface, and not with any idea of describing the pattern. This blind person passed his hand over the texture, and he made

certain observations which astonished me as to the definite form of certain minute effects which there were in the texture. To me it was a revelation, and at first I thought that someone must have described the texture to him, but I learned afterwards that he had no knowledge whatever of woven fabric or how they were formed, beyond what he had heard from others. Now, he went so far as to sketch a common diaper pattern from the touch of the surface of the texture. I suppose to anyone acquainted with the development which has taken place in the education of the blind, that may not mean much, but to my mind it suggests that the blind have the power to ascertain the definite form of minute patterns as they protrude on the surface of a substance. Inasmuch as they can do this, and as we are imparting to them what is meant by line and what is meant by form, it certainly assists them to understand the specimens which are presented to them.

MR. E. RIMBAULT DIBBIN (Liverpool) : I don't want to take up your time, but I should like to ask a question in order to obtain a little elucidation from Mr. Deas on the side of the question that he dwelt on least and which interests me most. I should like first of all to add my tribute to that of others on the excellence, not only of the paper, but upon the far more meritorious character of the experiments that it records. I know nothing about the subject, and I believe most of us are equally ill-informed unless our attention has been specially drawn to the intelligence of the blind. I should like to ask what other senses they possess are utilised for educational purposes. For instance, that sense of smell, which is latent in most of us. It seems to me that a development of that may be of great value, and may be the only possible way in which you could convey to them any idea of pictures. We certainly have it on record when a certain artist visited Palermo he went to see an old lady artist who had become blind, and after examining the picture with her fingers expressed her highest approval of it. How she succeeded in finding out its merits I don't know. I want to know if Mr. Deas observed any capacity on the part of his blind visitors to appreciate pictures in that manner. I doubt it. It certainly would not be very good for the pictures. I did not gather from Mr. Deas how he defined the idea of the pictures. I don't see how it is possible to convey the idea otherwise than by telling them what you see and know about colour, tone and so on. After all, tone can mean nothing to them.

MR. E. J. BURT, M.A., J.P., (Bristol) : I should like to ask Mr. Deas if he does not think it possible for the various museums to place themselves in communication with their education committees, and in that way get the work placed on the school curriculum ?

THE PRESIDENT : Before I call upon Mr. Deas to reply, I should like to express my own pleasure and satisfaction to him for having brought this subject before the Association. I am sure you will all share in that. We recognise it as an interesting experiment, and we are very much indebted to Mr. Deas for having gone into the subject in such detail in putting it before us. I will not go into the deeper aspects of the question, but there is the point of making our museums useful to the blind. That may very well be done in all our museums by forming a collection which would be very useful educationally by expanding the pleasure and interest of people who have been denied one of the most active and best of the senses for giving them enjoyment. That is a point which I think we ought to take into consideration, and to try to add to our museums another class of visitors, assisting them to develop a capacity for understanding through their remaining senses the things which are ordinarily brought home to people through the sense of sight. The sense of touch is evidently very delicate and acute, as was demonstrated by the models exhibited, which, I must confess, were a great puzzle to me. For a child to pass its hands over a bird and in ten minutes produce a model of that bird seems to suggest that it has been born an artist. I should like to thank Mr. Deas cordially for having taken such trouble to bring this subject before the meeting, and to congratulate him upon inaugurating experiments of such extreme importance.

MR. CHARLTON DEAS, in replying, said : I thank the various speakers for the very kind way in which they have spoken of my experiments. Though heavy work it was very interesting, and my labours have been rewarded by the appreciation of the blind and by your appreciation of my report. I have no doubt that—to some extent, but to some extent only—there is something in what has been said about the influence of previous knowledge of things beautiful or ugly. There is unquestionable practical benefit from the experiments, although I agree that much of it, as has been said, is to the mind, and after all we don't live for work only. You will remember the extract which I read from the early portion of Mr. Walker's letter with regard to practical results. There is no doubt that the sense of touch is very acute in a person born blind or blind from youth. A workman's hands become hard through toil, and if later in life the sense of sight is lost, it takes time to develop the sense of touch. I was surprised to find that the blind people did not handle the specimens in a systematic manner, but preferred to go about it in their own way, feeling a piece of the animal here, a piece there, and so on, eventually getting over the whole creature. This procedure suggested that they had no idea of proportion, and

yet five weeks after they had felt the specimens they produced, under our supervision, the remarkable models which are on view. At first I thought that they must have previously made or handled similar models, but I was assured that this was not so. In every case it was the first time the children had handled such things, and in some cases they had not made models of any kind before.

As to the sense of smell, this did not form part of the experiment, but may perhaps be taken up by some other investigator. Most of the pictures were glazed so that they could not smell the canvas. Some of them did smell the unframed canvas which was handed round, but I did not notice that they endeavoured to find out anything by smelling. I could have enlarged on the picture demonstration, but the account had to be kept within limits. Though we cannot give them colour we can give them some idea of form, which is certainly food for the imagination. If you had heard the sermon which was delivered on the pictures you would have been convinced that they had gathered considerable inspiration and ideas of form from the inspection. As to the question regarding school curriculum, it will be remembered that I suggested several ways in my paper in which such work can be carried out, by State aid to the museums, by specimens in the blind institutes, or by the education department taking it up and using it for the blind and also for their sighted scholars in the teaching of zoology. It may be that after several curators have tried the experiments we can from the consensus of opinion formulate definite policy. Mr. Guy M. Campbell, Principal of the Royal Normal College and Academy of Music for the Blind, Upper Norwood (who regrets his inability to be present), writes as follows, regarding the opening of museums and their influence upon blind children :—

“ It will be of the utmost value to blind children throughout the country if it is possible for the Museum Authorities to make arrangements whereby the children living in a town may have the opportunity of actually examining the specimens which are in the museum. Small models convey very little idea of what an animal is like, and life-size models are far too expensive for institutions and schools to afford. Two minutes' examination of a lion, or an elephant, or a kangaroo will give a blind child a conception that nothing else can possibly do. It makes all the difference of being able to 'see' and understand what he reads and hears about. It is almost impossible to convey to the mind of a blind child by words, particularly if the child became blind in early childhood, any idea of size, shape, features, etc. This, however, is immediately made possible if the child can come into personal contact with an actual specimen.

“ Any scheme by which Museum Authorities can be persuaded to allow these privileges to blind children would be an inestimable boon. It would be like opening to them a real fairyland.”

I hope that any developments which may arise from this address will be followed out in the spirit of duty, and not of special philanthropy ; for it is a duty, and one which we ought perhaps to have recognised and developed long ago. I would like to conclude with a quotation from a small poem which was written by Miss Queenie Scott-Hopper, after reading a letter written by Mr. Walker, who, as I told you, is himself blind. In this letter he described a holiday which he had just had with several blind children. The idea of a blind man going away with blind children for a holiday is a pathetic one. His account of the children's impressions led this lady to write a poem entitled—

A BLIND CHILD'S HOLIDAY.

• • • • •

If only for the Seeing Folk God made the country sweet,
 Then will you tell me why He put that music in the wheat ?
 I do not know if Seeing Folk catch words in what it sings—
 I only know that yesterday it taught me lots of things.

If only for the Seeing Folk God made the country sweet,
 Then tell me why there's nine in ten of all the flowers we meet,
 Have fragrance at the heart of them, breathed forth in magic wild—
 The very speech God's Love would choose to reach a sightless child.

• • • • •

O not alone for Seeing Folk God made the country sweet !
 The sunshine on the mosses warm ; the birds in high retreat ;
 The brook that round your ankles plays ; the boom of honey bee ;
 There's a message writ in Nature's Braille for folk who cannot see.

*“He that is stricken blind cannot forget
 The precious treasure of his eyesight lost.”—*

SHAKESPEARE.



Blind visitors listening to a lecture before examining a human skeleton.



Some of the children from the Blind School listening to a lecture.



Alice in Wonderland—"What do you mean when you say birds are not all alike?"



Dick, Tom and Harry in Wonderland



Methods of mentally visualising size.



"Now we know how big a lion is, but we couldn't ride a live one, could we?"



"Is this what children see at the Zoo?"



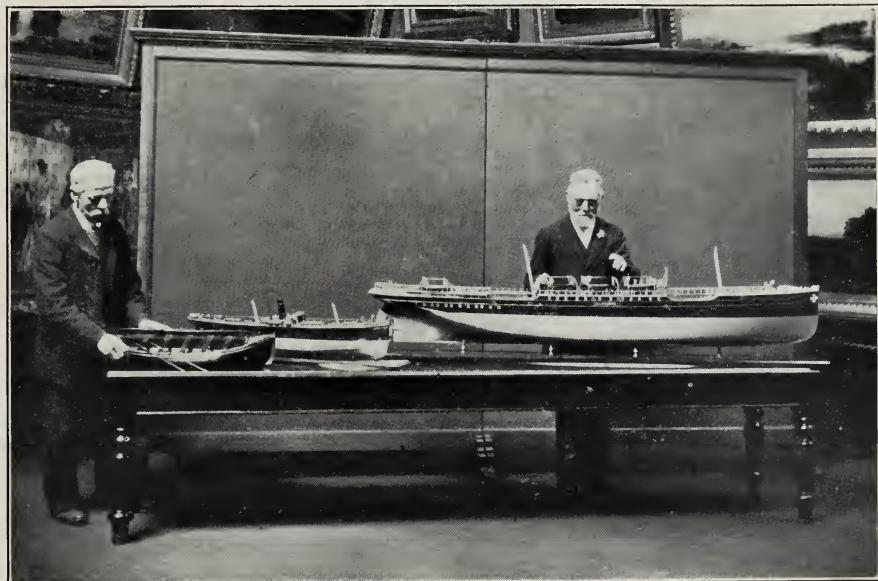
Budding Buddhists acquiring the Eastern attitude.



“And what should I see if I saw an aeroplane?”



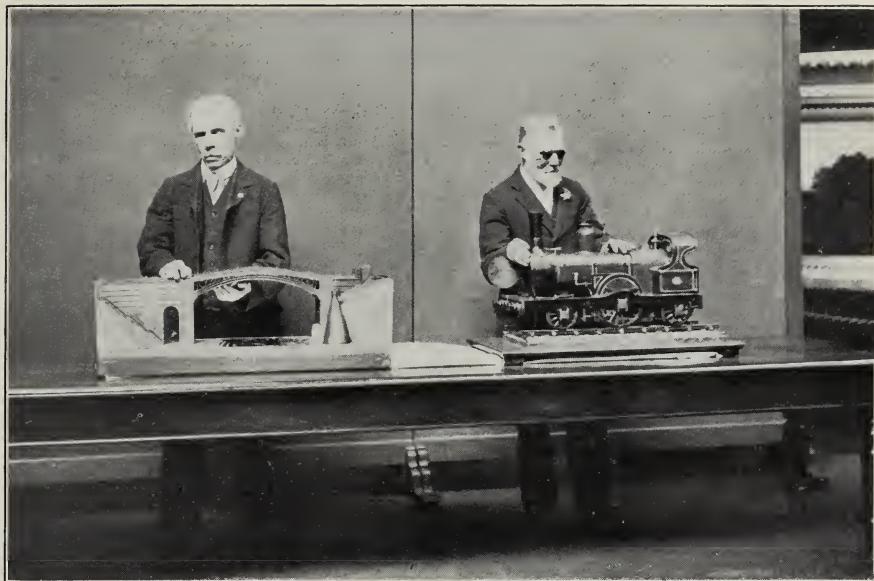
“What do you mean when you say that an engine runs?”



Enquiring into Sunderland's staple industry.



"We could not understand what a screw was, or how it worked."



Examining models of Sunderland Bridge and a working Locomotive.



Great men and two of their admirers.

A study in contrasts—eggs of the Aepyornis and Wren

“What was Carlyle like—and Darwin?”





Arms and armour—ancient and modern: how sighted men kill each other.



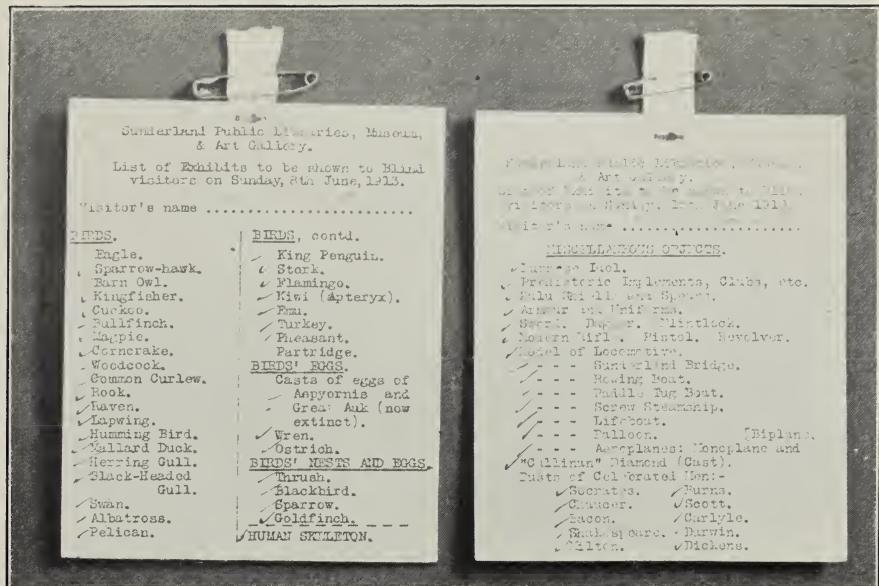
" . . . I am fearfully and wonderfully made."



Some of the models in plasticine made by partially blind children.



Models in potter's clay and plasticine made by children blind from birth.
"The models were made unaided by blind and partially blind children, five weeks after their single examination of the specimens represented."



Examples of programme cards attached to the coat lapel of each blind visitor.



Sunderland Central Public Library, Museum and Art Gallery.

